

What Is Claimed Is:

1. A device for determining at least one parameter of a medium flowing in a conduit in a main flow direction 18, in particular for determining the air-mass flow in the intake tract of an internal combustion engine, comprising a conduit member (3) which forms a conduit passage and has a center axis (41) running along the conduit passage (12), and further comprising a sensor device (1) having a bypass section (6) which is arranged in the conduit member (3) in such a manner that a partial flow of the medium flowing in the conduit member enters an inlet region (27) of a channel structure formed in the bypass section; the inlet region (27) having a separation opening (33) which opens into the conduit passage at at least one of two side walls (16, 17) of the bypass section (6) running parallel to the center axis (41), and which has a distance (a) from the downstream rear wall (14) of the bypass section in the main flow direction,

wherein a flow guide wall (4) running at least approximately parallel to the side wall (16) provided with the separation opening (33) of the bypass section (6) is located in the conduit member (3) behind the separation opening (33), as viewed in the main flow direction (18); the length dimension (b) of the flow guide wall, as viewed in the main flow direction (18), is equal to or greater than the distance (a) of the separation opening (33) from the rear wall (14); and

the distance (c) of the flow guide wall from the center axis of the conduit member (3) is greater than or equal to the distance (d) of the side wall (16) provided with the separation opening (33) of the bypass section (6) from the center axis (41).

2. The device as recited in Claim 1,

wherein only one flow guide wall (4) is provided which is located on the same side as the side wall (16) provided with the separation opening (33) with respect to the center axis (41) of the conduit member (3). (Figure 2)

3. The device as recited in Claim 1 or 2,

wherein the flow guide wall is located immediately or nearly immediately behind the rear wall (14) of the bypass section (6), as viewed in the main flow direction (18).

4. The device as recited in one of Claims 1 through 3,

wherein the difference between the distance (c) of the flow guide wall (4) from the center axis of the conduit member (3) and the distance (d) of the side wall (16) provided with the

separation opening (33) of the bypass section (6) from the center axis (41) is less than 10 mm, and preferably less than 5 mm.

5. The device as recited in Claim 1, wherein the flow guide wall (4) has an aerodynamically favorable contour.

6. The device as recited in one of the preceding claims, wherein a flow deflector element (2) is disposed in the conduit member (3) upstream of the bypass section (6), as viewed in the main flow direction (18); the flow deflector element having at least one deflection surface (20) which faces the main flow direction (18) and which, starting at an apex line (25) spaced apart from the bypass section (6), is uniformly curved on both sides toward the two side walls (16, 17) in such a manner that the ends (38) of the deflection surface (20) which face away from the apex line are flush with the side walls (16, 17).

7. The device as recited in Claim 6, wherein a turbulence-generating structure (23, 37) is provided on, or at least in the immediate proximity of, the deflection surface (20) of the bypass section (6), at least before the side wall (16) provided with the separation opening (28), as viewed in the main flow direction (18); this structure generating turbulences in the boundary layer of the flow at this side wall (16) of the bypass section.

8. The device as recited in Claim 1, wherein the flow guide wall (4) has at least one outer surface (49), and preferably two outer surfaces facing away from each other, on which are arranged turbulence-generating structures (50).

9. The device as recited in Claim 8, wherein the turbulence-generating structures (50) are formed by a row of projections which are preferably arranged periodically along a line and protrude from the outer surface (49) of the flow guide wall (4); the turbulence-generating structures forming, in particular, a comb-like, battlement-like, or jagged pattern.

10. The device as recited in Claim 8,  
wherein the turbulence-generating structures are located on the first 5% to 25% of the length dimension (b) of the flow guide wall (4) in the main flow direction, as viewed from the end of the flow guide wall (4) facing the main flow direction (18).